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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/590,794

09/18/2006

Marc Girault

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DRINKER BIDDLE & REATH LLP
ATTN: PATENT DOCKET DEPT.
191 N. WACKER DRIVE, SUITE 3700
CHICAGO, IL 60606

EXAMINER

VAUGHAN, MICHAEL R

ART UNIT

PAPER NUMBER

2431

MAIL DATE

DELIVERY MODE

12/30/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/590,794	Applicant(s) GIRAULT ET AL.	
	Examiner MICHAEL R. VAUGHAN	Art Unit 2431	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 October 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The instant application having Application No. 10/590,794 is presented for examination by the examiner. Claims 1-23 are pending. Claims 1 and 17 are amended.

Request for information under 37 CFR 1.105

Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application.

A. In response to this requirement, please provide answers to each of the following interrogatories eliciting factual information:

1. Did applicant know about any publication which taught the use of padding zeroes between ones to avoid having to use a multiplication operation?
2. Does applicant know of any use of padding zeroes between ones to avoid having to use a multiplication operation in applications other than cryptography?

B. In response to this requirement, please provide copies of each publication which any of the applicants authored or co-authored and which describe the disclosed

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subject matter of performing multiplication by shifting successive copies of the first factor across zeroes padded between consecutive ones.

C. In response to this requirement, please provide the title, citation and copy of each publication that any of the applicants relied upon to develop the disclosed subject matter that describes the applicant's invention, particularly as to developing the computational improvement which results from the process of performing multiplication by shifting successive copies of the first factor across zeroes padded between consecutive ones. For each publication, please provide a concise explanation of the reliance placed on that publication in the development of the disclosed subject matter.

D. In response to this requirement, please provide the title, citation and copy of each publication that any of the applicants relied upon to draft the claimed subject matter. For each publication, please provide a concise explanation of the reliance placed on that publication in distinguishing the claimed subject matter from the prior art.

This Office action has made a requirement for information under 37 CFR 1.105. A complete reply to this Office action must include a complete reply to the attached requirement for information. The time period for reply to the attached requirement coincides with the time period for reply to this Office action.

Response to Amendment

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-16 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Processes must be tied to a particular machine or transform a particular article to a different state or thing. Claims 1-16 fail both of these tests. There is no **particular** machine recited in the claims. The device can be any device capable of multiplying two numbers which produce a value. One does not need a special purpose computer to multiply two numbers. An arithmetic logic unit given two factors can generate a result. This claim covers the mathematical algorithm which states that binary numbers can be multiplied by shifting bits and more generally that any number multiplied by one is that number. These are both mathematical algorithms.

The transformation test fails because mathematical manipulation is not a transaction for a particular article to a different state or thing. The value produced at the end the method has no claimed practical use. It is simply a value which makes up some "cryptographic value". Any number can be used to make up part of another number no matter what the number is used for. Multiplying two numbers (values) to

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yield another value does not meet the transformation test. The claim merely follows the laws of binary arithmetic. In response to Applicant's car analogy, yes one can make a patentable steering wheel, but a method of producing a number which makes up part of another number by mathematical manipulation is not patentable.

Claims 17-23 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims recite a mathematical algorithm and are thus unpatentable. The cryptographic operation of the claims is not an inventive process, but rather illustrates the fact that a number multiplied by one is that number. Having one of the factors with zeroes padded between ones ensures that the other factor will be multiplied by one. There is no reason to actually multiply the number because the number does not change. The claim makes light of this fact, and furthermore does not provide a practical application because the end value only makes up part of some other unclaimed cryptographic value. Looking at the claim as a whole, the device multiplies two factors to arrive at another value that on its own has no claimed use. The particular format of the factor, has no meaning because in the end, the same product is produced whether actual multiplication is used or by shifting bits because of the fundamental multiplicative identity law ($a * 1 = a$).

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 15 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. As per claims 15 and 16, the cryptographic value (y) is not found to have been produced, only a part of it. Since only a part of the cryptographic value is produced, it's unclear how it relates to (y). The scope of the invention is therefore indefinite because part of (y) does not equate to (y).

Response to Arguments

Applicant's arguments, see pages 9-11, filed 10/19/09, with respect to claims 1 and 17 have been fully considered and are persuasive. The 35 USC 102(e) rejections of claims 1-23 has been withdrawn.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL R. VAUGHAN whose telephone number is (571)270-7316. The examiner can normally be reached on Monday - Thursday, 7:30am - 5:00pm, EST. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Korzuch can be reached on 571-272-7589. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/M. R. V./

Examiner, Art Unit 2431

/William R. Korzuch/

Supervisory Patent Examiner, Art Unit 2431